

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**WSOU INVESTMENTS, LLC D/B/A  
BRAZOS LICENSING AND  
DEVELOPMENT,**

**Plaintiff,**

**V.**

**ZTE CORPORATION, ZTE (USA)  
INC. AND ZTE (TX), INC.,**

## Defendants.



**CIVIL ACTION 6:20-cv-00490-ADA**  
**CIVIL ACTION 6:20-cv-00491-ADA**  
**CIVIL ACTION 6:20-cv-00493-ADA**  
**CIVIL ACTION 6:20-cv-00497-ADA**

## PLAINTIFF'S REPLY CLAIM CONSTRUCTION BRIEF

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**I. U.S. Patent No. 7,203,505 (Case No. 6:20-cv-00497) Claim Terms****1. “a formatter to format the received data into at least one SMS (Short Message Service) message” (Claim 14) / “formatting” / “formatter to format” (Claims 1, 14, 23)**

<b>WSOU’s Proposed Construction</b>	<b>Defendant’s Proposed Construction</b>
Plain and ordinary meaning	<p>Governed by 35 U.S.C. § 112(f)  Function: formatting the received data into at least one SMS (Short Message Service) message</p> <p>Indefinite under 35 U.S.C. § 112(b)<sup>1</sup>; specification fails to describe it;</p> <p>Structure: none disclosed</p>

Because “a formatter to format the received data into at least one SMS (Short Message Service) message” does not recite the words “means,” mean-plus-function construction under Section 112, ¶ 6, presumptively does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Resolving whether the term “a formatter to format the received data into at least one SMS message” invokes Section 112, ¶ 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter’s choice not to use the word “means.” *Samsung Elecs. Am. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1354 (Fed. Cir. 2020). The presumption stands here.

A person of skill in the art would understand the claim language to refer to structure, particularly by its recitation of “a mobile terminal device comprising...,” and where the specification provides certain exemplary embodiments. For example, the specification teaches: “Modern-day mobile terminals, such as mobile telephones, have been provided with the SMS (Short Message Service) capability.” ’505 patent, 1:66-2:1, *see also Id.*, 3:49-50. Further, the specification teaches that “It is noted that SMS standards provide for sending multiple short

<sup>1</sup> Defendant had no problem finding the claim terms to be sufficiently definite when filing its petition in IPR2021-00698. *See e.g.*, Ex. A, at 13-14, 21-23, 28-30, 36; *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010) (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”). In filing its IPR petition, “the petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon” 37 C.F.R. § 42.104(b)(4) (emphasis added).

messages which are combined by the recipient” (*Id.*, 4:8-10), showing that the SMS standard was well known at the time of the invention. Next, the specification expressly discloses “the SMS programming in the mobile terminal” (*Id.*, 4:26-27), further confirming that mobile terminals include SMS and SMS formatting capability. Finally, the specification expressly states that **“the specific details of the SMS protocol... have not been included in the present specification for the sake of brevity. It is understood that these industrywide protocols are readily available and the details thereof are incorporated by reference herein in their entirety.”** *Id.*, 4:46-51 (emphasis added). Therefore, as the specification expressly discloses, SMS capability, and thus the capability to format SMS messages, were already provided into mobile terminals at the time of invention. Accordingly, while the presumption stands un rebutted that Section 112, ¶ 6, does not apply to the claim language in question, Defendant is also wrong in arguing the specification lacks any written description of corresponding structure. Defendant argues that “a POSITA would not even understand the structure of the ‘formatter’ without disclosure in the specification.” Resp. at 9. However, Defendant’s argument is wholly conclusory and without any support. To the contrary, as discussed above and as the specification discloses, mobile phones already had SMS capability, and SMS standards were well known and **readily available**. In other words, as the specification discloses, a POSITA would understand the mobile phone to be the structure referred to by the claim language.<sup>2</sup> Further, Defendant has found these terms to be sufficiently definite at least through the filing of the petition in IPR2021-00698. *See e.g.*, Ex. A, at 21-23, 28-30, 36.

Similarly, and for the same reasons as discussed above, the terms “formatting” and “formatter to format” should be given their plain and ordinary meaning.

## 2. “data message receiver” (Claim 14)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b) <sup>3</sup>

<sup>2</sup> In addition, Defendant itself admits that “‘SMS messages’ [ ] would be understood by a person of ordinary skill to be cellular based” Resp. at 10 (emphasis added). Thus, Defendant contradicts its own (conclusory) allegations regarding a POSITA.

<sup>3</sup> Defendant had no problem finding the claim term to be sufficiently definite when filing its

	Lack of Written description under 35 U.S.C. § 112(a)
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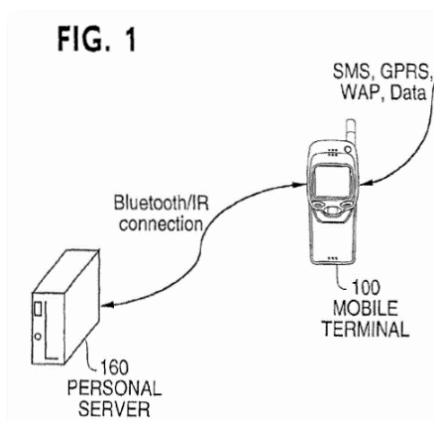
The Court has provided guidance that “the Court’s general practice is to separate 112, 1/a issues from claim construction.” Ex. D at 1. Therefore, it is WSOU’s understanding that the Court will not address the merits of Defendant’s arguments regarding lack of written description under 35 U.S.C. § 112(a) in these *Markman* proceedings. Nonetheless, out of an abundance of caution, courts in this district have instructed that “patent validity arguments like lack of enablement and lack of written description are not proper during claim construction proceedings.” Opening Br. at 6-7 (collecting cases). Even if the Court is inclined to consider the merits of Defendant’s arguments outside the context of a motion for summary judgment, Defendant fails to meet the exacting standard of clear and convincing evidence. Indeed, Defendant offers no evidence whatsoever. Defendant relies exclusively on the conclusory attorney argument (which is not itself evidence) that “a POSITA would not even understand the claimed ‘data message receiver’ is hardware or software.” Resp. at 10. Defendant further relies on the conclusory attorney argument of what Defendant speculates is or is not “a generic function of a mobile terminal device.” Resp. at 10. Tellingly, Defendant does not even attempt to explain why exemplary disclosure in the written description is somehow insufficient.

As to its arguments of indefiniteness, Defendant also overlooks the claim language and specification, which includes ample disclosure showing that the claim term is not indefinite. For example, Claim 14 itself recites “a mobile terminal device comprising...,” and Claim 21, further recites “The device of claim 14, wherein the data receiver receives data messages via one of an IR (Infrared) or Bluetooth communication link.” ’505 patent, 6:1-3. As the claims themselves disclose, the data message receiver is a mobile terminal device capable of a communication link such as IR or Bluetooth. Furthermore, the specification also teaches that “there are personal

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petition in IPR2021-00698. *See e.g.*, Ex. A, at 13-14, 26-28; *Enzo*, 599 F.3d at 1332 (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”). In filing its IPR petition, “the petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” 37 C.F.R. § 42.104(b)(4) (emphasis added).

portable server devices presently available which only have short range connection capabilities, such as IR (Infrared) or Bluetooth. Accordingly, at present, they are unable to synchronize data with remotely located terminals which are out of their limited communication range.” *Id.*, 1:57-62. The specification teaches that “Many such modern-day mobile terminals include IR or Bluetooth capability which allows them to communicate with the aforementioned personal portable servers.” *Id.*, 2:9-12. Accordingly, in an exemplary embodiment, the specification teaches that “[a] personal server 160, for example, is connected to the mobile terminal 100 via a short range connection such as Bluetooth or IR.” *Id.*, 3:4-6. This is illustrated by the following excerpted part of Figure 1:



As shown above, the intrinsic evidence informs one of skill in the art at the time of the invention “about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910-11 (2014). Defendant has found this term to be sufficiently definite at least through the filing of the petition in IPR2021-00698. *See e.g.*, Ex. A, at 26-28.

### 3. “SMS (Short Message Service)” (Claims 1, 14, 23)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Cellular based messages of limited size consisting of text and numbers.

Defendant admits that no construction is necessary. First, Defendant expressly admits that SMS messages “would be well understood by a person of ordinary skill in the art to be cellular-based.” Resp. at 10. Thus, as Defendant admits, SMS messages were well known to a POSITA, and this term should get its plain and ordinary meaning. Second, Defendant argues that

the patentee acted as his own lexicographer (Resp. at 11-12); however, Defendant merely points to an exemplary embodiment. “To act as his/her own lexicographer, the patentee must ‘clearly set forth a definition of the disputed claim term,’ and ‘clearly express an intent to define the term.’” *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Defendant has failed to meet this exacting standard.

Furthermore, while Defendant’s intention as to “cellular-based” is still confusing, Defendant appears to expressly contradict its own contention that SMS messages are exclusively cellular-based in stating that “a gateway [] is required for **conversion** from a cellular based SMS message to IP-based message.” Resp. at 12 (emphasis added). Regardless, the specification provides that SMS is a store and forward service, “that is, short messages are not sent directly from sender to recipient but rather are sent via an intermediary SMS center instead.” ’505 patent, 2:1-7. Moreover, the specification expressly teaches that “Modern-day mobile terminals, such as mobile telephones, have been provided with the SMS (Short Message Service) capability.” *Id.*, 1:66-2:1, *see also, Id.*, 3:49-50. Further, the specification teaches that “It is noted that SMS standards provide for sending multiple short messages which are combined by the recipient” (*Id.*, 4:8-10), showing that the SMS standard was well known at the time of the invention. Finally, the specification expressly states that “the specific details of the SMS protocol... have not been included in the present specification for the sake of brevity. It is understood that these industrywide protocols are readily available and the details thereof are incorporated by reference herein in their entirety.” *Id.*, 4:46-51. Accordingly, no construction of this term is necessary.

## II. U.S. Patent No. 8,179,960 (Case No. 6:20-cv-00490) Claim Terms

### 1. “virtual reference [data]” (Claims 1, 2, 3, 9, 10, 15, 16, 17, 23, and 24)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
a group of pixels (e.g., a block) that is used as reference material for encoding portions of the video signal (e.g., a motion-compensated inter-predicted block), but that does not comprise or represent any portion of the actual video sequence to be displayed.	A group of pixels used as reference material for encoding portions of the video signal, but that does not comprise or represent any portion of the actual video sequence to be displayed.



Defendant **admits** that its proposed construction is a *paraphrasing* of the express definition provided by the specification. Resp. at 13. Defendant’s own citation shows that the term defined is “virtual reference **data**.” *Id. citing* ’960 patent, Abstract. Defendant then somehow goes on to accuse *WSOU* of “[r]edrafting the claims” (*id.*), despite *WSOU*’s proposal being identical to the express lexicography from the specification. To the extent Defendant’s argument can be understood, Defendant appears to support its paraphrasing of the lexicography by citing to an exemplary embodiment in which Defendant emphasizes a different term (“frame (or slice)” versus “data”) (Rep. at 14). This term should be given the exact definition recited by the specification: “a group of pixels (e.g., a block) that is used as reference material for encoding portions of the video signal (e.g., a motion-compensated inter-predicted block), but that does not comprise or represent any portion of the actual video sequence to be displayed.” ’960 patent, 2:17-22; Abstract.

**2. “does not represent any portion of any individual frame of the original video signal” (Claims 1, 9, 15, 23)**

<b>WSOU’s Proposed Construction</b>	<b>Defendant’s Proposed Construction</b>
Plain and ordinary meaning	Data generated based on a portion of a video signal but not to be displayed with the video signal.

The full claim phrase provides all of the context and requirements necessary, for example, in Claim 1, the relevant portion recites: “wherein the generated virtual reference data does not represent any portion of any individual frame of the original video signal which is to be displayed in said subsequent video display thereof.” ’960 patent, 12:2-5; *see also Id.*, 13:13-16 (Claim 9), 14:5-8 (Claim 15), 15:16-19 (Claim 23). Defendant’s proposed construction fails to address the entire phrase and at best attempts to re-write the claim language, which is unnecessary and unhelpful. Defendant argues that “a POSITA would not understand the meaning of the remainder of the claim language” (Resp. at 15), but Defendant provides nothing for support and instead merely makes conclusory attorney argument. Defendant further contrives various straw-man arguments regarding the plain language of the claims (*Id.*); however, Defendant cites to nothing to support its contrived concerns.

## 3. “minimize differences”

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b) <sup>4</sup>

Defendant argues that this is a term of degree. Regardless of whether Defendant is correct, the specification provides a standard for measuring that degree. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015). This standard must “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Id.* at 1379 (quoting *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014)). “The degree of precision necessary for adequate claims is a function of the nature of the subject matter.” *Id.* at 1382 (quoting *Miles Labs., Inc. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993)) (quotation modification marks omitted). But “absolute or mathematical precision is not required.” *Id.* at 1381 (quoting *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371-72 (Fed. Cir. 2014)). More specifically, the specification provides the standard for “minimizing differences.” For example, the specification, first teaches that:

“Most major standard video codecs (i.e., coders and decoders) achieve a data compression advantage over still image coding techniques by using a block-based, motion-compensated prediction scheme. **Such schemes are fully familiar to those of ordinary skill in the art...**

....

The second method is to code a block by providing a pointer to a similar, previously coded block which is used as a reference, and to further **provide an error block that indicates the differences between the reference and the block to be coded** (i.e., inter-coding).” ’960 patent, 1:15-34 (emphasis added).

The above passage, from the BACKGROUND OF THE INVENTION section, shows that indicating the differences between a reference block and a block to be coded was well known in

<sup>4</sup> Defendant had no problem finding the claim term to be sufficiently definite when filing its petition in IPR2021-00696. *See e.g.*, Ex. B, at 12-13, 67-70; *Enzo*, 599 F.3d at 1332 (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”). In filing its IPR petition, “the petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon” 37 C.F.R. § 42.104(b)(4) (emphasis added).

the art. Defendant argues that video coding standards listed in the specification “have nothing to do with minimizing differences...” Resp. Br. at 17 (emphasis removed). However, Defendant fails to support its contention that the listed video standards do not describe the required minimizing. Defendant also makes the mere conclusory attorney argument that the above description “has nothing to do with minimizing differences...” *Id.* But Defendant misses the point, that the specification teaches that determining differences was well known in the art and a person of skill in the art would be able to minimize those differences. Then the specification teaches:

“In the H.264 standard encoder, for example, the Context-Adaptive Variable Length Coding (CAVLC) entropy coder (which is also familiar to those skilled in the art) is used as a lossless compression method well suited for block-based video coding. In a typical case, the error is a quantized difference between the discrete cosine transform (DCT) coefficients of the predicted pixels and the DCT coefficients of the actual pixels. (The use of DCT coefficients in video coding is also fully familiar to those of ordinary skill in the art.) **In general, the encoding is more efficient if there are many differences which are equal to zero, but it is still highly efficient if the (absolute value of the) difference of select non-zero terms is equal to 1. An occasional absolute difference greater than 1 in these select terms breaks the efficiency of the entropy coder and requires a disproportionately large number of bits to encode.**” ’960 patent, 3:62-4:10 (emphasis added).

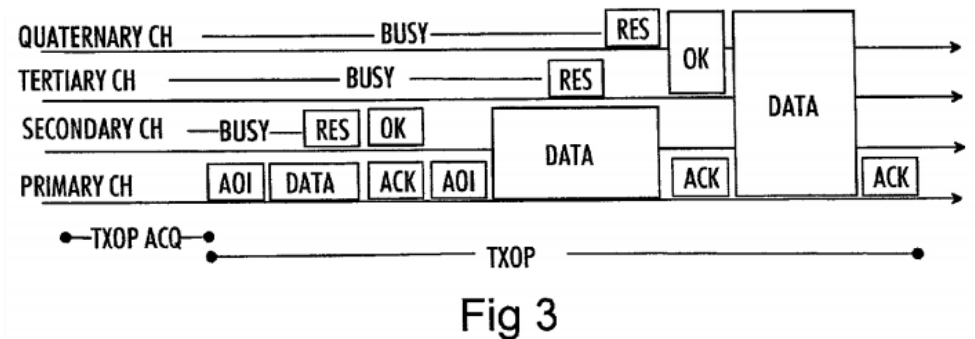
As shown by the passages above, the specification provides a standard for determining whether a difference is minimized, which is where the absolute value of the difference is as close to zero as possible (as an example, 1 or less). Therefore, this term is not indefinite. Defendant complains that “the ‘difference’ described in the above-noted paragraph is completely different from the [difference] as recited in the claims.” Resp. at 18. However, even if Defendant is correct (and WSOU does not so concede), Defendant again misses the point. Specifically, Defendant has failed to show that a person of skill in the art would not understand how to “minimize differences” based on the teachings in the specification – specifically minimizing differences means to get as many differences as close to zero as possible. Moreover, Defendant has found this term to be sufficiently definite at least through the filing of the petition in IPR2021-00696. *See e.g.*, Ex. B, at 67-70.

### III. U.S. Patent No. 8,730,905 (Case No. 6:20-cv-00491) Claim Terms

#### 1. “during a time interval between data transmission intervals during the transmission period” (Claims 4, 15)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b)

The claim language itself is fully descriptive, and the specification also provides various exemplary embodiments, such as those illustrated by Figure 3, where the specification teaches: “Upon transmitting the reservation message, the reserving STA may transmit the reservation response message (**OK in the Figures**) to the TXOP holder. **The reservation response message may be communicated (transmitted and received) during a time interval between data transmission intervals during the transmission opportunity.**” ’905 patent, 8:58-61 (emphasis added); *see also Id.*, 8:7-61, Figs. 3-9. Figure 3 illustrates that the reservation response message (“OK”) is transmitted and received in a time period during the transmission period (TXOP) and between data transmission intervals (DATA):



Defendant contrives a straw-man argument that allegedly shows “ambiguity” (Resp. 19-21); however, Defendant provides nothing for support of its contrived argument. Further, the embodiment illustrated by Figure 3, above (which Defendant annotates) shows that a reservation response (“OK”) message is not transmitted during the second “DATA” transmission, but data is being transmitted at that time. Further, not only is there no support for Defendant’s contrived so-called “ambiguity,” even if a time interval between the first and third “DATA” transmission is considered, Figure 3 above illustrates two instances where a reservation response (“OK”) message is transmitted in that interval between the first and third data transmission intervals.

2. “at least one frequency channel indicator” (Claims 5, 16)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b)

Defendant again contrives a straw-man argument for an issue that doesn’t exist. *See* Resp. at 21. The full claim term is: “**at least one frequency channel indicator indicating the at least one additional frequency band** that is to be reserved by the second wireless communication apparatus.” *See e.g.*, ’905 patent, 19:24-27 (Claim 5) (emphasis added), 21:3-6 (Claim 16). The plain language of the claim itself provides that the “**at least one frequency channel indicator**” is an indicator **of at least one additional frequency band**. Thus, despite Defendant’s contrived arguments, the claim language itself expressly provides for at least one (and possibly more than one) frequency channel indicator, each of which may indicate at least one (and possibly more than one) additional frequency band. Further, the specification teaches that the channelization rules for 802.11ac radios define the frequency channels available, having a primary channel and zero or more secondary channels (*Id.*, 1:21-28), and in an exemplary embodiment where, after acquiring a transmission period on a first frequency band, seeking to reserve additional frequency bands by sending a reservation request message which includes at least one indicator that indicates at least one additional frequency band that is to be reserved (*Id.*, 1:33-63).

3. “causing the transmission of the reservation message on each frequency band separately” (Claims 9, 21)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b)

To the extent Defendant’s argument can be understood, Defendant appears only to argue that Defendant does not understand the meaning of the word “separately.” Resp. at 23.<sup>5</sup> The claim language is self-explanatory, but for full context, the full claim term recites: “wherein second wireless communication apparatus is requested to reserve a plurality of frequency bands, the

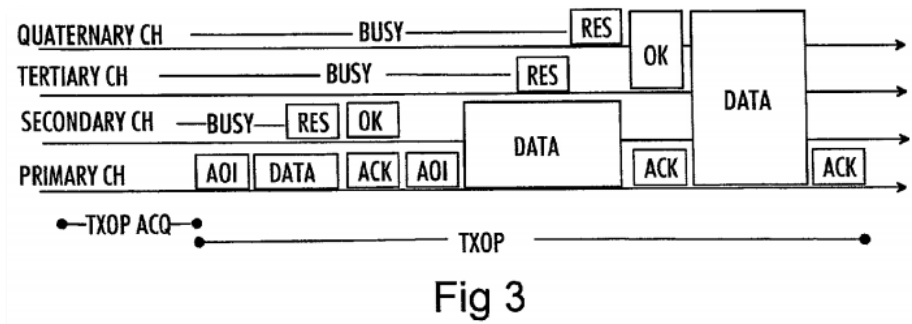
<sup>5</sup> In addition, Defendant cites to nothing for support of its argument, instead, Defendant only makes the conclusory assertion that “separately” is “not amenable to construction” and that the specification “also fails to explain the meaning of ‘separately’.” Resp. 23. Both of Defendant’s mere conclusory statements are demonstrably false.

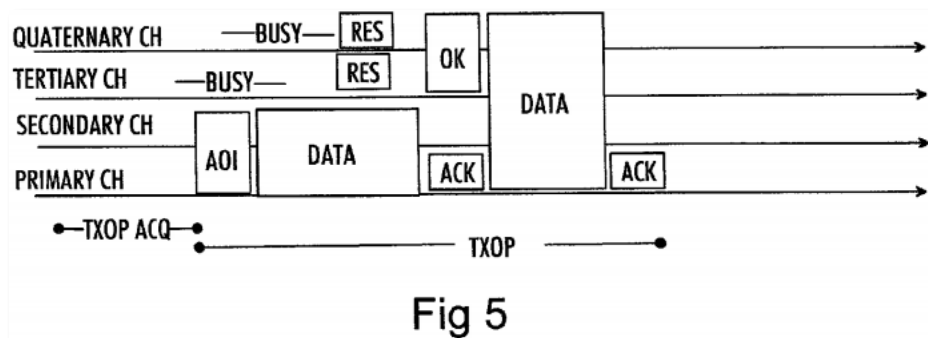
method further comprising causing the transmission of the reservation message on each frequency band separately.” ’905 patent, 20:1-5 (Claim 9), 21:56-61 (Claim 21). As expressly recited by the claim language, where it is requested to reserve a plurality of frequency bands, the reservation message (not necessarily identical) is separately transmitted on each frequency band, which provides for certain advantages. For example, the specification discloses various exemplary embodiments, such as the one discussing Figures 3 and 4, and Figure 5:

“In the embodiments of FIGS. 3 and 4, the reserving STA is configured to reserve the channels by transmitting the reservation messages individually on the channels being reserved (one reservation message at a time).” *Id.*, 10:20-23.

**“In the embodiment of FIG. 5, the reserving STA is configured to transmit the reservation messages concurrently on a plurality of channels that are to be reserved. Accordingly, each reservation message comprises separate PLCP and MAC (Medium Access Control) headers. An advantage of providing separate messages, e.g. 20 MHz bandwidth, is that even those communication apparatuses supporting only IEEE 802.11a are able to receive the reservation messages and apply the NAV setting.”** *Id.*, 10:23-31 (emphasis added).

Figures 3 and 5 (reproduced below) illustrate the above embodiments, where the reservation messages (RES) are transmitted one at a time (Figure 3), and where the reservation messages are transmitted concurrently (Figure 5), but in both cases, the reservation messages are transmitted on each frequency band separately:





As another example, in further discussing Figure 3, the specification recites that in the situation where the TXOP holder decides to try to reserve additional transmission band(s), the TXOP holder attempts to reserve the tertiary or quaternary channel and instructs a terminal station (STA) to reserve the tertiary and quaternary channels, and upon detection of the channels becoming available, the STA transmits the reservation message (RES) separately on both the tertiary and quaternary channels as shown in Figure 3. *Id.*, 9:11-35.

#### IV. U.S. Patent No. 9,294,060 (Case No. 6:20-cv-00493) Claim Terms

##### 1. “extracting a feature vector” (Claims 1, 10)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b) <sup>6</sup>

Defendant merely concludes that a “POSITA would not understand whether ‘extracting a feature vector from the audio signal’ means extracting an already computed feature vector from the audio signal or a feature vector using the audio signal.” Resp. at 25. Defendant’s argument is nonsensical (and without any support), but to the extent it can be understood, Defendant is wrong. The specification expressly teaches how to extract a feature vector from the audio signal. Instead of addressing the intrinsic evidence, Defendant instead ignores each and every example disclosed by the specification.

<sup>6</sup> Defendant had no problem finding the claim term to be sufficiently definite when filing its petition in IPR2021-00697. *See e.g.*, Ex. C, at 19-20, 26-29; *Enzo*, 599 F.3d at 1332 (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”). In filing its IPR petition, “*the petition must specify where each element of the claim is found* in the prior art patents or printed publications relied upon” 37 C.F.R. § 42.104(b)(4) (emphasis added).

The specification and the claims provide that an audio signal comprises a plurality of frequency components ('060 patent, 2:14-15, Abstract, 29:4-5 (Claim 1), 30:15-17 (Claim 10), and a feature vector “comprises at least one frequency domain component feature and at least one time domain component feature. *Id.*, 2:16-17, Abstract, 29:6-9 (Claim 1), 30:18-21 (Claim 10). The specification also provides numerous exemplary embodiments of extracting a feature vector. For example, in one exemplary embodiment the specification teaches that feature extractor 407 “can in some embodiments be used to extract features from both the audio signal frame and the frequency domain transformation of the audio signal frame.” *Id.*, 10:39-44. It also teaches that in at least one embodiment, the frequency domain features can be extracted at least in part by determining the power spectral density of the frequency coefficients in the input signal. *Id.*, 10:64-11:2. Where a formula for mapping the frequency components from Hertz to the corresponding frequency component in the mel scale is provided. *Id.*, 11:16-12:27. Where the sub band energies corresponding to the first five sub bands can form the first five features of the feature vector extracted. *Id.* The specification further teaches that feature extractor 407 can in some embodiments also extract further frequency domain features from the frequency domain signal, where the further frequency domain features can be based on the centroid of the spectrum of the frequency domain signal. *See Id.*, 12:29-13:24. Where the centroid of the frequency domain signal spectrum can form the sixth component of the extracted feature vector, and a seventh frequency domain based feature vector may be derived from determining the spectral flatness of the input audio signal frame. *Id.*, 12:54-13:16.

Next, the specification teaches that feature extractor 407 “can in some embodiments also extract time domain based features from the audio signal frame by processing the time domain signal conveyed on the connection.” *Id.*, 13:16-19. Where the time domain based feature extracted by the feature extractor can be a gradient index based on the sum of magnitudes of the gradient of the speech signal in the time domain, and where the specification provides detail on how to determine such gradients. *Id.*, 13:20-64. Further, the specification teaches that a second time based feature may be extracted which is dependent on the energy ratio of the audio signal frame, and the



specification also provides detail on how to determine such a feature. *Id.*, 13:65-14:9. The specification also teaches a third time based feature for the audio signal which by determining whether the signal exhibits active or inactive regions, and where the specification discloses details on how to make such a classification. *Id.*, 14:10-52. In summary, the specification provides numerous and detailed teachings regarding processing the audio signal frame in both time and frequency domains in order to extract the feature vector. Moreover, Defendant has found this term to be sufficiently definite at least through the filing of the petition in IPR2021-00697. *See e.g.*, Ex. C, at 26-29.

## 2. “level value is attenuated” (Claims 1, 10)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	Indefinite under 35 U.S.C. § 112(b) <sup>7</sup>

The plain language of the claims themselves provide that the sub band energy level is reduced when the power of the audio signal approaches an estimate of the level of noise in the audio signal. The specification also provides various exemplary embodiments showing the same, including an exemplary embodiment describing an adaptive attenuation technique that can reduce perceived noise in an artificially generated high band signal by filtering the energy levels associated with each sub band of the artificially generated high band signal through the use of a band energy smoother. *Id.*, 18:8-46. Where the sub band energy smoother counteracts artefacts produced as a result of a neural network selecting sub band energy levels which are too high. *Id.*, 17:34-40. Defendant argues that this term is indefinite because it is a term of degree. Resp. 25-28. Defendant is wrong. All that is required is an attenuation. In other words, by the plain language of the claims, and in light of the specification, any attenuation is sufficient to satisfy this term. Defendant has found this term to be sufficiently definite (and not a term of degree) at least through

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<sup>7</sup> Defendant had no problem finding the claim term to be sufficiently definite when filing its petition in IPR2021-00697. *See e.g.*, Ex. B, at 19-20, 37-40; *Enzo*, 599 F.3d at 1332 (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”). And in filing its IPR petition, “the petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon” 37 C.F.R. § 42.104(b)(4) (emphasis added).

the filing of the petition in IPR2021-00697, where Defendant argues *any* “damping” is sufficient. *See e.g.* Ex. C. at 37-40. Furthermore, the specification also includes an exemplary embodiment teaching that the sub band energy levels can “in some embodiments be attenuated according to the difference between the energy of the current audio signal frame and the noise floor estimate using piecewise linear mapping.” ’060 patent, 18:36-40.

### 3. “spectral shape parameter” (Claims 1, 10)

WSOU’s Proposed Construction	Defendant’s Proposed Construction
Plain and ordinary meaning	A sub band energy level value or a sub band gain factor based on the sub band energy level value.

Defendant’s proposed construction should be rejected for improperly importing limitations not required in the claims or specification. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012) (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). More specifically, the specification states that the spectral shape parameter “may be a sub band energy level value” and “may be a sub band gain factor based on the sub band energy level value” (’060 patent, 2:55-58 (emphasis added)), but the specification expressly **does not** limit spectral shape parameter to just those two parameters through the use of the phrase “may be.” Instead, the specification recites that “the at least one spectral shape parameter corresponds to a sub band signal comprising frequency components which belong to a further plurality of frequency components” (*Id.*, 2:19-23); thus the specification expressly **does not** limit spectral shape parameter as Defendant proposes. Defendant’s arguments amount to calling for patents to include a dissertation on the underlying subject matter while completely disregarding the state of the art. Resp. at 28-29. Defendant’s arguments are wholly conclusory and fails to support its argument that giving this term its plain and ordinary meaning would “expand the scope without a boundary.” Resp. at 29; *see also Smith & Nephew, Inc. v. Ethicon, Inc.*, 276 F.3d 1304, 1311 (Fed. Cir. 2001) (“claims are intended to provide a concise statement of the claimed invention as distinguished from what has gone before; a claim is not a handbook for practice of the invention”).

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

A true and correct copy of the foregoing instrument was served or delivered electronically via U.S. District Court [LIVE]- Document Filing System, to all counsel of record, on April 23, 2021.

/s/ Ryan Loveless  
Ryan Loveless